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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Ex parte MICHAEL D. RIES, T. WADE FALLIN, DANIEL F. JUSTIN, and MARK A. MUNT

Appeal 2008-4678
Application 10/763,314
Technology Center 3700

Decided: December 12, 1008

Before ERIC GRIMES, RICHARD M. LEBOVITZ, and FRANCISCO C. PRATS, *Administrative Patent Judges*.

GRIMES, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 involving claims to a femur prosthesis. The Examiner has rejected the claims as anticipated and as lacking adequate written description in the Specification. We have jurisdiction under 35 U.S.C. § 6(b). We reverse.

BACKGROUND

The Specification discloses "a femoral hip prosthesis that satisfies the need for anatomically distributing the dynamic compressive loads on the hip joint to the proximal femoral bone" and that "is adapted for implantation against a resected surface on a proximal end of a femur, and also in an intramedullary cavity of the femur" (Spec. 4).

Figure 1 of the Specification is shown below.

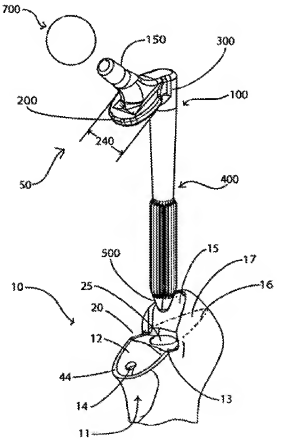

Fig. 1

Fig. 1 is said to show a perspective view of the femoral prosthesis before it is inserted into the femur.

The Specification discloses that the "femoral hip prosthesis 50 comprises a femoral head component 700 and a femoral stem component 100" and that the "femoral stem component 100 comprises a neck portion 150, a flange portion 200, a transitional body portion 300, an elongated stem portion 400, and a distal tip end 500" (Spec. 7). The Specification further discloses that the "non-eccentric symmetrical shape of the interface between the elongated stem portion 400 . . . and a cavity 25 along with the contact at the interface between a proximal resection 20 and the femoral stem component 100 helps to stabilize the femoral hip prosthesis 50 and transfer more anatomic loads from the prosthesis 50 to the bone efficiently" (*id.*).

DISCUSSION

1. CLAIMS

Claims 1-10, 12-18, 20 and 40-57 are pending and on appeal. Claims 1 and 40 are representative and read as follows:

Claim 1: A prosthesis adapted for implantation against a resected surface on a proximal end of a femur and inside of an intramedullary cavity of the femur, the prosthesis comprising:

a femoral head component comprising an external bearing surface; and

a femoral stem component comprising:

a neck portion comprising a proximal portion, engagable with the femoral head component, and a distal neck body;

a flange portion distal and adjacent to the neck portion, the flange portion comprising a bottom surface;

a transitional body region adjacent to the bottom surface of the flange portion and extending from the distal neck body; and

an elongated stem portion extending distally from the transitional body region and having a longitudinal axis oriented at an acute angle from the bottom surface of the flange portion;

wherein the transitional body region is shaped to flex such that, during a normal gait cycle, the bottom surface exerts a significant compressive load on the resected surface of the femur.

Claim 40: A prosthesis adapted for implantation against a resected surface on a proximal end of a femur and inside of a cavity of the femur, comprising:

a femoral head component comprising an external bearing surface; and

a femoral stem component comprising:

a neck portion shaped to extend substantially outside the cavity of the femur, the neck portion having a proximal portion, engagable with the femoral head component, and a distal neck body;

a flange portion medially and distally projecting from the neck body, the flange portion comprising a bottom surface;

an elongated stem portion shaped to extend substantially inside the cavity of the femur and extending distally from the neck body and having a longitudinal axis oriented at an acute angle from the bottom surface of the flange portion;

wherein, distally of a medial tip of the flange, each cross sectional shape along substantially an entire length of the elongated stem portion is substantially radially symmetrical.

2. WRITTEN DESCRIPTION

Claims 1-10, 12-18, 20, 42, 43, 45-49, 51-53, and 55-57 stand rejected under 35 U.S.C. § 112, first paragraph, on basis that they lack written description in the Specification.

Claims 1-10, 12-18, and 20:

The Examiner finds that the limitation that the transitional body region is "'shaped to flex such that, during a normal gait cycle,..' is not found in the original disclosure" (Answer 3).

Appellants argue that the Specification describes the "flexure of the stem component 100 and the transitional body region 300," and refers to the

transitional body 300 allowing the stem component 100 to flex and transmit the compressive loading to the bone (Appeal Br. 6-7; citing the Spec. at ¶ 36-37). Appellants reason that "[p]atient gait is the clear context underlying the transmission of such loading" (*id.* at 7). Appellants further argue that the phrase "as the hip joint is loaded during clinical use" in paragraph 37 of the Specification "would be understood by those skilled in the art to refer to postoperative use within a patient" (*id.*).

The Examiner responds that the cited paragraphs fail to describe or support "normal gait cycle" because "[w]hat is normal to a track athlete is not normal to an elderly individual" and that "'clinical use' and 'patient gait' does mean 'normal'" (Answer 7).

We agree with Appellants that the originally filed Specification provides adequate descriptive support for the disputed limitation. The Specification describes, and the claims define, a hip prosthesis that is intended to help a patient walk, with flexing of the transition region helping to accomplish this goal. One of skill in the art would have understood that any particular individual would have a "gait cycle" or "normal gait cycle" while walking using the prosthesis. While the particulars of that gait cycle will vary between individuals, the Specification's disclosure adequately shows that Appellants were in possession of the claimed hip prosthesis having a "transitional body region ... shaped to flex ... during a normal gait cycle." The rejection of claims 1-10, 12-18, and 20 on the basis of lack a written description in the Specification is reversed.

Claims 42, 49, 53, 55, and 57:

Claim 42 is identical to claim 40 except that its "wherein" clause reads: "wherein, distally of a medial tip of the flange, any two maximum cross sectional widths of the elongated stem portion, measured perpendicular to the longitudinal axis, do not differ by more than ten percent." Claims 49, 53, and 55 include similar limitations, and claim 57 depends on claim 42.

The Examiner finds that the limitation that "***any two maximum cross sectional widths*** *of the elongated stem portion ... do not differ by more than ten percent*" is not supported in the original disclosure (Answer 7). The Examiner reasons that the original claim 42 stated that "*the elongated stem portion does not vary in its maximum cross sectional width by more than ten percent*" *(id.)* and that the present claim language "only compares maximum cross sectional widths and ...fails to include the minimum widths and everything in between in the comparison" as in the original claim (*id.* at 7-8).

We will reverse this rejection. Original claim 42 is quoted above. In addition, the Specification states the following:

> The elongated stem portion is encompassed within a cylindrically shaped envelope referred to as uniform envelope 410. The cross-sectional shape and the area of the uniform envelope 410 remains substantially uniform throughout the longitudinal length of the elongated body. The uniform envelope 410 has a circular uniform cross-sectional periphery 902 that is defined by the maximum cross-sectional peripheral diameter 905 of the elongated stem portion 400.

(Spec. at ¶ 38.)

Original claims are part of the specification of a patent application. *See Hyatt v. Boone*, 146 F.3d 1348, 1352 (Fed. Cir. 1998) ("The claims as filed are part of the specification, and may provide or contribute to compliance with § 112."). Both the Specification and original claim 42 describe an elongated stem portion with minimal variation in its cross-sectional width. One of skill in the art would have recognized the disclosure as showing possession of a prosthesis having a maximum width at any two points, i.e. any two maximum cross-sectional widths, that does not vary by more than ten percent at the time the application was filed. The rejection of claims 42, 49, 53, and 57 on the basis of lack a written description in the Specification is reversed.

Claim 43:

Claim 43 reads:

> 43. A prosthesis as in claim 1,
> wherein the elongated stem portion comprises a proximal section having a cross sectional shape that is substantially consistent along a longitudinal length of the proximal section,
> wherein a minimum displacement between the bottom surface of the flange and the proximal section, measured normal to the bottom surface, is less than a maximum cross sectional width of the elongated stem portion, measured perpendicular to the longitudinal axis.

The Examiner finds that the "minimum displacement" limitation is not supported in the original disclosure (Answer 8). The Examiner further finds that "[u]nless the specification states the drawings as drawn to scale, applicant cannot use them to support detailed limitations" (*id.* at 3).

Appellants argue that the claim "is supported by the text of original claim 21" (Appeal Br. 9).

We agree with Appellants that the originally filed Specification provides adequate descriptive support for the disputed limitation. Original claim 21 includes the limitation "wherein the transitional body region has a maximum height, measured normal from the bottom surface of the flange to any part of the transitional body region, the height is less than the diameter of the maximum cross-section outer periphery dimension." Given that original claim 21 describes that the distance between the plane of the bottom of the flange and the most distal part of the transitional body region (i.e. the proximal portion of the elongated stem portion) as less than the maximum cross section of the elongated stem portion, one of skill in the art would have understood that Appellants were in possession of a prosthesis having "a minimum displacement between the bottom surface of the flange and the proximal section" that is "less than a maximum cross sectional width of the elongated stem portion." The rejection of claim 43 on the basis of lack a written description in the Specification is reversed.

Claim 45:

Claim 45 reads:

45. A prosthesis as in claim 40, wherein, distally of a medial juncture of the neck portion with the flange, each cross sectional shape along substantially the entire length of the elongated stem portion is substantially radially symmetrical.

The Examiner finds that the limitation "'radially' ... in combination with the terms 'substantially symmetrical'" is not supported in the original disclosure (Answer 8).

Appellants argue that prostheses that are "non-eccentrically symmetrical" or "substantially symmetric and non-eccentric" are described

in original claim 39 and paragraph 40 of the Specification (Appeal Br. 10). Appellants further argue that Fig. 4 "illustrates the elongated stem portion 400 distal of the medial junction of the neck portion 150 with the flange 200" to be "clearly radially symmetrical along substantially its entire length" (*id.* at 10-11), with Figs. 4a-4e illustrating "cross-sections of embodiments of the elongated stem portion" that are "clearly radially symmetrical" (*id.* at 11).

We first must interpret the meaning of the term "radially symmetrical."

> [A]s an initial matter, the PTO applies to the verbiage of the proposed claims the broadest reasonable meaning of the words in their ordinary usage as they would be understood by one of ordinary skill in the art, taking into account whatever enlightenment by way of definitions or otherwise that may be afforded by the written description contained in the applicant's specification.

In re Morris, 127 F.3d 1048, 1054 (Fed. Cir. 1997).

The Specification does not expressly define "radially symmetrical." "Without evidence in the patent specification of an express intent to impart a novel meaning to a claim term, the term takes on its ordinary meaning." *Optical Disc Corp. v. Del Mar Avionics*, 208 F.3d 1324, 1334 (Fed. Cir. 2000). The ordinary meaning of "radial symmetry" is "the condition of having similar parts regularly arranged around a central axis."[1] Thus, one of skill in the art would understand the recitation of "radially symmetrical" in

[1] *Merriam-Webster Online Dictionary*, Merriam-Webster Online, accessed 4 November 2008 (http://www.merriam-webster.com/dictionary/radial symmetry).

claim 45 to mean that the cross-section of the stem portion has a shape that can be divided into a group of identical parts by a set of radii between its axis and its perimeter.

We agree with Appellants that the originally filed Specification provides adequate descriptive support for the disputed limitation. Given that radially symmetrical embodiments of the elongated stem portion are shown in at least Figures 4a, 4d, and 4e, one of skill in the art would have understood that Appellants were in possession of a prosthesis having an elongated stem portion with a cross-section that is substantially radially symmetrical at the time the application was filed. The rejection of claim 45 on the basis of lack a written description in the Specification is reversed.

Claim 46:

Claim 46 reads: "A prosthesis as in claim 40, wherein each cross sectional shape is selected from the group consisting of a circle, a rectangle, a triangle, a hexagon, and a star shape."

The Examiner finds that the limitation of a cross-sectional shape that is a triangle is not supported in the original disclosure (Answer 8). The Examiner reasons that "the specification teaches [a] 'substantially triangle shape' not the claimed 'triangle shape'" (*id.*).

Appellants argue that "[c]laim 46 is … illustrated in Figures 4a-4e" (Appeal Br. 11).

We agree with Appellants that Figures 4a through 4e provide descriptive support for a prosthesis having a cross section in the shape of a circle, rectangle, triangle, hexagon, or star. The rejection of claim 46 on the basis of lack a written description in the Specification is reversed.

Claims 47, 52, and 56:

Claim 47 reads: "A prosthesis as in claim 40, wherein the elongated stem portion comprises a proximal section having a substantially circular shape, and a distal section having a noncircular cross sectional shape." Claims 52 and 56 include similar limitations.

The Examiner finds that the claim limitation of substantially circular shape is not supported by the original disclosure (Answer 8). The Examiner reasons that the "elected embodiment of figures 1-3 teaches a distal section with a circular cross-section. Circular is broader than just a circle" (*id.*).

Appellants argue that the "embodiment depicted in Figure *5* clearly shows that the elongated stem portion comprises a proximal section with a substantially circular shape, and a distal section with a non-circular cross sectional shape, as evidenced by the splines 460 and slot 480" (Appeal Br, 11-12).

We agree with Appellants that Figure 5 provides adequate descriptive support for the disputed limitation. The rejection of claims 47, 52, and 56 on the basis of lack a written description in the Specification is reversed.

We summarily reverse the rejection of claims 48 and 51 under 35 U.S.C. § 112 because the Examiner has not set forth any basis for rejecting these claims.

3. ANTICIPATION I

Claims 40-42 and 45-57 stand rejected under 35 U.S.C. § 102(e) as anticipated by Meulink.[2]

Figures 1-3, 8 and 9 of Meulink are provided below.

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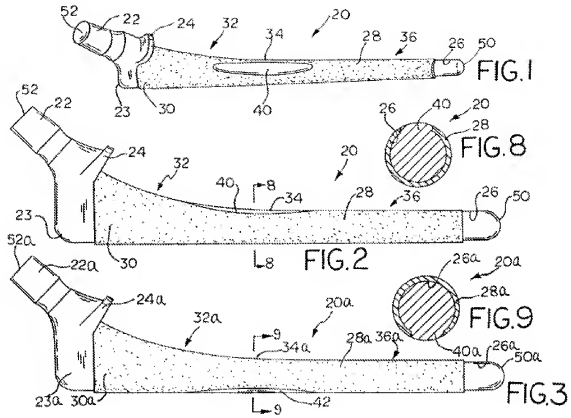
[2] Meulink et al., US 6,514,288 B2, Feb. 4, 2003.



Figs. 1 and 2 are said to show a perspective view and a side view, respectively, of a femoral stem (Meulink at col. 2, ll. 40-42). Fig. 3 is said to show a side view of a second embodiment (*id.* at col. 2, ll. 43-44). Figs. 8 and 9 are said to show cross-sectional views of the femoral stems of Figs. 2 and 3, respectively (*id.* at col. 2, ll. 53-56).

The Examiner finds that Meulink discloses a prosthesis that meets all the limitations of claims 40-42 and 45-57 (Answer 4).

Appellants argue that Meulink does not disclose the invention of claim 40 because, when the side views of Figs. 2 and 3 are considered "simultaneously with the medial-lateral views of Figures 4 and 5, it is plain that proximal portions of the femoral shafts increase significantly in height

... as they approach the shoulder, but increase little if at all from side to side (as seen in Figures 4 and 5)" and thus, the "cross section of the proximal portion of the femoral shaft clearly does not remain radially symmetrical as it approaches the shoulder" (Appeal Br. 14-15).

The Examiner reasons that "at least the noted portion [i.e. the cross-section shown in Figs. 8 and 9] is considered 'along substantially the entire length'" and that the claim only requires that the elongated stem portion be "'substantially radially symmetrical'" (Answer 9).

We agree with Appellants that the Examiner has not adequately explained how Meulink shows the limitation that "distally of a medial tip of the flange, each cross sectional shape along substantially an entire length of the elongated stem portion is substantially radially symmetrical," as recited in claim 40.

The Examiner has not pointed to any express disclosure of this limitation in Meulink. Meulink's Figures 2 and 3 show side views of embodiments in which the stem portion clearly varies in cross sectional width. Figures 4 and 5 of Meulink, referenced by the Appellants, show medial and lateral views of a third embodiment of the invention, which varies substantially less in cross sectional width than the side views shown in Figures 2 and 3.

Although Meulink does not show both a side view and a medial/lateral view of the same embodiment, one of skill in the art would reasonably expect that the embodiments shown in the figures would have the same basic shape of the prosthesis. Thus, because the cross sectional width shown Figures 2 and 3 varies significantly along the length of the stem,

whereas the cross sectional width shown in Figures 4 and 5 does not vary much, a substantial portion of the stem in Meulink's prosthesis has an eccentrically shaped cross section, rather than the shape shown in Figures 6 and 7. We therefore agree with Appellants that Meulink's figures do not show that the elongated stem of Meulink prosthesis has substantial radial symmetry along substantially the entire length of the stem portion.

Appellants argue that Meulink does not disclose the invention of claim 41[3] "because the femoral shafts 36, 36a shown in Figures 1, 2 and 3 do not show '... substantially an entire length of the elongated stem portion circumscribed by a substantially cylindrical shape'" (Appeal Br. 15).

The Examiner reasons that the "stem of Meulink et al easily meets this broad and unpatentable limitation. It is the Examiner's position that any shape can be circumscribed by a substantially cylindrical shape" (Answer 9).

We will reverse the rejection of claim 41. In our view, "circumscribed by a substantially cylindrical shape" requires that the circumference of the stem portion be substantially cylindrical. Given that Meulink discloses a prosthesis having a stem that varies in shape from substantially cylindrical at one end to a substantially eccentric shape at the other end, Meulink does not reasonably disclose a prosthesis having "substantially an entire length of the elongated stem portion … circumscribed by a substantially cylindrical shape."

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[3] Claim 41 is identical to claim 40 except that its "wherein" clause reads: "wherein, distally of a medial tip of the flange, substantially an entire length of the elongated stem portion is circumscribed by a substantially cylindrical shape."

Appellants argue that Meulink does not teach the limitation of claim 42 that "distally of a medial tip of the flange, any two maximum cross sectional widths of the elongated stem portion, measured perpendicular to the longitudinal axis, do not differ by more than ten percent" (Appeal Br. 16).

The Examiner reasons that "any two **adjacent** cross sectional widths" meet the claim limitation (Answer 9).

We will reverse the rejection of claim 42. Claims are given their broadest *reasonable* interpretation during examination. *In re Morris*, 127 F.3d at 1054. Claim 42 requires that "any two maximum cross sectional widths of the elongated stem portion, measured perpendicular to the longitudinal axis, do not differ by more than ten percent."

The Examiner appears to interpret the claim language as equivalent to "*at least* two maximum cross sectional widths . . . do not differ by more than ten percent"; that limitation would merely require that one could choose two cross sectional widths that differed by less than ten percent. *Any two* cross-sectional widths, however, is a narrower limitation; it requires that, no matter which two maximum cross sectional widths are chosen, they differ by less than ten percent. Thus, claim 42 requires that all of the maximum cross sectional widths in the elongated stem portion differ by no more than ten percent.

Given this interpretation of the disputed limitation, and the disclosure of Meulink of a stem portion with substantial tapering, as discussed above, we agree with the Appellants that the Examiner has not adequately explained how the reference shows the disputed limitation of claim 42.

In summary, we reverse the rejection of independent claims 40-42, and dependent claims 45-57, as being anticipated by Meulink.

4. ANTICIPATION II

Claims 40-42 and 45-57 stand rejected under 35 U.S.C. § 102(b) as anticipated by Burke.[4]

Figure 1 of Burke is shown below:

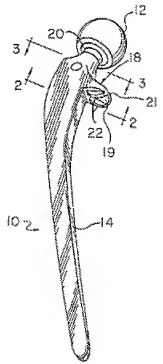

Fig.1

Fig. 1 is said to show a perspective view of a prosthetic hip implant (Burke at col. 4, ll. 56-57).

The Examiner finds that Burke discloses a prosthesis that meets all the limitations of claims 40-42 and 45-57 (Answer 5).

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[4] Burke, US 6,179,877 B1, Jan. 30, 2001.

Appellants argue that Burke does not disclose the limitation of claim 40 that "'each cross-sectional shape along substantially an entire length of the elongated stem portion is substantially radially symmetrical'" because Burke's stems "have cross-sectional shapes which are obviously wider in a medial-lateral direction than an anterior-posterior direction, producing a shape which is not radially symmetrical" (Appeal Br. 18).

The Examiner reasons that Fig. 6 of Burke shows "the stem 14 having a rectangular cross section which is substantially radially symmetrical" and that "[r]adially symmetrical is generally being symmetrical about two planes" (Answer 10).

We agree with Appellants that the Examiner has not adequately explained how Burke shows the limitations of claim 40. Burke discloses "a femoral component of a prosthetic device" having a stem with a rectangular cross section (Burke, col. 3, ll. 6-11; Fig. 2).

As discussed above, "radially symmetrical" means the regular arrangement of parts around a central axis. One of skill in the art would not reasonably construe the rectangular shaped prosthesis stem of Burke as being radially symmetrical, because it does not have a shape that can be divided into a group of identical parts by a set of radii between its axis and its perimeter. Thus, Burke does not disclose a prosthesis meeting all the limitations of claim 40.

With regard to claim 41, the Examiner reasons that "any shape can be circumscribed by a substantially cylindrical shape" (Answer 10).

As discussed above, however, we interpret "circumscribed by a substantially cylindrical shape" to require that the circumference of the stem

portion be substantially cylindrical. Burke discloses a prosthesis that is primarily rectangular, not substantially cylindrical, along most of its length. Burke therefore does not reasonably disclose a prosthesis meeting all the limitations of claim 41.

The Examiner reasons that Burke teaches the limitation of claim 42 that "distally of a medial tip of the flange, any two maximum cross sectional widths of the elongated stem portion, measured perpendicular to the longitudinal axis, do not differ by more than ten percent" because "any two **adjacent** cross sectional widths which [sic] meet the claim limitation" (Answer 11).

As discussed above, however, claim 42 requires that all of the maximum cross sectional widths in the elongated stem portion differ by no more than ten percent. Given this interpretation of the disputed limitation, and the disclosure of Burke of stem portion with substantial tapering, we agree with the Appellants that the Examiner has not adequately explained how the reference shows the disputed limitation of claim 42.

Thus, we reverse the rejection of independent claims 40-42, and dependent claims 45-57, as being anticipated by Burke.

5. ANTICIPATION III

Claims 40-42 and 45-57 stand rejected under 35 U.S.C. § 102(b) as anticipated by Hoffman.[5] Figure 2 of Hoffman is shown below.

[5] Hoffman, EP 0539036 A1, Apr. 28, 1993.

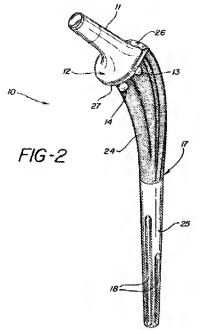

FIG-2

Fig. 2 of Hoffman is said to show "an isometric view of the femoral component" of a femoral prosthesis (Hoffman at col. 2, ll. 14-18). The prosthesis includes "a number of cement spacers 13 and 14" (*id.* at col. 3, ll. 2-3).

The Examiner finds that Hoffman discloses a prosthesis that meets all the limitations of claims 40-42 and 45-57 (Answer 6).

Appellants argue that "Hoffman does not disclose [the claim 40 limitation] that '...each cross sectional shape along substantially an entire length of the elongated stem portion is substantially radially symmetrical.'" (Appeal Br. 20-21.)

The Examiner reasons that because the claim only requires that the stem is substantially radially symmetrical along substantially the entire length, this claim limitation is disclosed by Hoffman (Answer 11). Thus, the Examiner's reasoning appears to be that the use of the term "substantially"

in the claim as applied to the "entire length" and "radially symmetrical" renders the claims broad enough to encompass the prosthesis disclosed by Hoffman.

We agree with Appellants that the Examiner has not adequately explained how the reference shows the limitation that "distally of a medial tip of the flange, each cross sectional shape along substantially an entire length of the elongated stem portion is substantially radially symmetrical."

Hoffman's hip prosthesis includes "cement spacers which are located on the stem of the prosthesis distal to the collar" (Hoffman, col. 1, ll. 50-51). The spacers are shown on Hoffman's Fig. 2 (above). Thus, given the protruding spacers on Hoffman's prosthesis, one of skill in the art would reasonably conclude that the elongated stem of Hoffman lacks substantially radial symmetry along substantially the entire length of the stem portion. Thus, we reverse the rejection of claim 40 as being anticipated by Hoffman.

Appellants argue that Hoffman does not disclose the invention of claim 41 "because the stem portions 24 and 25 best seen in Hoffman's Figure 4 do not show '. . . substantially an entire length of the elongated stem portion circumscribed by a substantially cylindrical shape'" (Appeal Br. 21). The Examiner reasons that at least lower portion 25 of Hoffman's stem "meets this broad and unpatentable limitation" and that "any shape can be circumscribed by a substantially cylindrical shape" (Answer 11).

As discussed above, however, we interpret "circumscribed by a substantially cylindrical shape" to require that the circumference of the stem portion be substantially cylindrical, which Hoffman's is not. The fact that part of Hoffman's stem may be substantially cylindrical is inadequate; claim

41 requires that "substantially an entire length of the elongated stem portion" be substantially cylindrical.

With regard to claim 42, the Examiner again reasons that "any two **adjacent** cross sectional widths which [sic] meet the claim limitation" (Answer 11).

For the reasons discussed above, however, we conclude that the Examiner's interpretation of the claim language is unreasonably broad. We interpret claim 42 to require that all of the maximum cross sectional widths in the elongated stem portion differ by no more than ten percent. Because Hoffman discloses a stem portion with substantial tapering, we agree with the Appellants that the Examiner has not adequately explained how the reference shows the disputed limitation of claim 42.

Thus, we reverse the rejection of independent claims 40-42, and dependent claims 45-57, as being anticipated by Hoffman.

SUMMARY

We agree with Appellants that the Examiner has not set forth a prima facie case of anticipation based on the cited references, and we therefore reverse the rejections of claims 40-42 and 45-57 under 35 U.S.C. § 102.

We also reverse the rejection of claims 1-10, 12-18, 20, 42, 43, 45-49, 51-53, and 55-57 under 35 U.S.C. § 112, first paragraph.

REVERSED

cdc

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